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## A Questionnaire of the Nature of Critical Thinking From the College Teachers in China

GENG Fuyun<sup>[a],\*</sup>; SUN Yan<sup>[a]</sup><sup>[a]</sup>Faculty of Education, College of Literature, Southwest University, Chongqing, China.

\*Corresponding author.

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### Abstract

This study employed a semi-structure questionnaire to explore the understanding of the nature of critical thinking on from the college teachers. Most Chinese scholars believed that they have known the nature of critical thinking, but they couldn't agree with others. The key words such as "reason", "reflection", "openness", "questioning", "argument", "equality", "truth-seeking", "prudent", "inference", "diversity", "logic", "analysis", "evaluation", "dialectical", "precise" will help the college teacher understand the nature of critical thinking. The difference between male and female, among the different academic title of college teachers in the nature of critical thinking will enlighten Chinese scholars a lot. Scholar's disciplinary background, gender and academic directly affect their opinions of critical thinking, interdisciplinary research should be paid more attention to promote the development of critical thinking.

**Key words:** Critical thinking; College teacher; Chinese scholar

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### INTRODUCTION

It is a truth that critical thinking is an unquestionable good for the development of modern society, including

education. Educators agree that critical thinking "is central to both personal success and national needs" (Paul, 2004, p.2), it is because that critical thinking can promote the development of higher order or cognitive intellectual abilities. The ability to think reflectively for meaningful learning has been a key educational goal in schools and colleges (Dewey, 1998). Most scholars agree that the improvement of the critical thinking is an important educational objective, however, they often disagree on exactly what critical thinking is (Bensley, 2011). The recent study shows that the thought of critical thinking came from the Greek philosopher Socrates (469-399 B.C.), developing a special kind of dialogue that used reasoning to examine opinions, because he emphasized reflection on the quality of the belief and thinking (Ennis, 1987; Paul, 1993). In fact, this is scholar's conclusion. In all of the Socrates' works, he didn't refer to the term "critical thinking". Goodwin Watson and E. M. Glaser did it in 1941, published the Watson-Glaser Tests of Critical Thinking. They tried to product a definition of critical thinking. After more than three decades of discussions about the critical thinking, scholars paid too much attention to critical thinking. As of August 19, 2014, Amazon.com lists 61,921 titles on critical thinking. Google scholar lists much more titles of critical thinking than Amazon.com.

As every coin has both sides, an abundance of research makes a better understanding of the critical thinking; at the same time, because of persistent complaints from those working in various disciplines about the need to refine its conceptualization (e.g., Bensely, 2009; Cody, 2006; Johnson, 1992; Petris, 2004; Riddell, 2007; Williams & Worth, 2001), disagreements about the nature of critical thinking continue. As the review above suggests, critical thinking remains a construct in transition, in need of future integration of concepts from philosophy, psychology, education and other disciplines (Bensely, 2011).

Although we all agree that critical thinking is an important element of Western thought, even traceable to Socrates, scholars have battled over whether the Left or Right critical thinking, based on their understanding. Almost every famous scholar has a definition of critical thinking(e. g., Beyer, 1995; Chance, 1986; Dong, 2012; Ennis, 1987; Facial, 2008; Fisher, 2001; Alpenhorn, 1998; Johnson, 1993; Kurfiss, 1988; Lipman, 1991; Paul, 1999, 2006; Scriven, 2000; Zhang, 1989; Zhu, 2002). Glaser thought critical thinking involved certain attitudes, knowledge, method of logic questioning and critical thinking skills (Glaser, 1941); Robert Ennis defined critical thinking as “reasonable, reflective thinking focused on deciding what to believe or do” (Ennis, 1987), Paul (1993) believed critical thinking is an intellectually disciplined process “of actively and skillfully conceptualizing, applying, analyzing, synthesizing or evaluating information” (p.3). Halpern (1999) asserted that critical thinking is “purposeful, reasoned, and goal-directed” (p.70), while maintaining that “it is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions” (p.70). APA Delphi Panel acknowledged that critical thinking is related to “problem solving, decision making and creative thinking” (Facione, 1990). In 1997, In a statement for the National Council for Excellence in Critical Thinking Instruction, Scriven and Paul (2000) defined critical thinking as “self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way” (p.1). After many years, these definitions become classical definitions and have been translated into many languages, including Chinese. In China, most of the study on critical thinking mainly focus on translation work, scholars don’t contribute to the theory of critical thinking. Zhenyi Gu, who is a professor from China Youth University of Political Study stated that “All defined critical thinking by Chinese author cannot be used as the representative definition” in the email to me. Yu Dong, the most famous critical thinking expert doesn’t define the critical thinking in his book, *the principle and method of critical thinking*. Although there is no classical definition from Chinese scholars, it is not believed that there is no definition of critical thinking. In fact, more than 100 definition appeared in Chinese academic. What is the critical thinking in Chinese scholars’ opinion.

## 1. METHODOLOGY

The value of this article centers on the understanding

of the nature of critical thinking on the college teachers by a semi-structure questionnaire. This questionnaire is divided two parts, the structure questionnaire and the open question. According to California Critical Thinking Skill Test (Revised in 2000), the structure questionnaire adopts Likert -Scale five - point measure questionnaire to explore the understanding of the nature of critical thinking from the college teachers, makeup of interpretation, analysis, inference, evaluation and self-regulation items. The open question is that “write down 5-10 key words of critical thinking”

The population of this study was a convenience sample of college teachers who will attend a critical thinking training project in Peking University. The demographic makeup of the college teacher reveals that 62.2% of the teacher population is male, 37.8% female; 16.2% of the teacher population is professor, 37.8% associate professor, 46.0% lecturer. The total number of college teachers enrolled in the training project is approximately 37 teachers, however, it was not convenient for the instructor of the training project to collect data from this entire population. So, the population was limited to those teachers enrolled in the training project. Table 1 shows the demographic of the sample.

**Table 1**  
**Sample Demographic Characteristics**

	Professor	Associate professor	Lecturer	Total
Male	3	11	9	23
Female	3	3	8	14
Total	6	14	17	37

## 2. RESULTS

### 2.1 College Teachers Self-Cognition

Table 2 gives us that the statistical analysis of frequency of college teachers self-cognition of the nature of critical thinking. 78.40% of the college teachers agreed by asking the question “I think I know the nature of critical thinking”, 18.90% strongly agreed that. In total, approximately 97.3% of the college teachers stated that they have really understood the nature of critical thinking. However, knowing in imagination is one thing, really knowing is another thing. Whether the college teacher understands the nature of critical thinking, it is not concluded the valid conclusion, that is only to say the college teacher certainly believed in themselves knowing about the nature of critical thinking.

**Table 2**  
**College Teachers Self-Cognition of the Nature of Critical Thinking**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Frequency	0	0	1	29	7
Percentage			2.70%	78.40%	18.90%

## 2.2 T-Test Analyses: Gender

A paired tail t test was calculated and analyzed to determine whether the difference in mean scores between male and female was statistically significant in the study. There did not appear to be a statistical significance between male and female scores for total, interpretation, analysis, inference; there is a difference in evaluation scores, self-regulation scores between male and female. Table 3 reveals a  $p$  value of 0.028 for the difference in values from male to female for the variable evaluation and a  $p$  value of 0 for the variable self-regulation. In total, the significance level was positive ( $0 < p < 0.05$ ). The significance of gender scores for variable evaluation, self-regulation indicates that if we want to deeply research in the theory of critical thinking, we must consider variable gender can affect the study of critical thinking.

**Table 3**  
**T-Test Analyses: Gender**

	gender	Mean	SD	t-value	p-value
Total	0	18.89	3.571	-0.254	0.8
	1	19.02	3.304		
Interpretation	0	10.22	2.666	0.899	0.375
	1	9.87	2.484		
Analysis	0	1.49	1.491	1.704	0.093
	1	1.17	0.45		
Evaluation	0	6.05	1.653	-2.212	0.028
	1	6.57	1.529		
Self-Regulation	0	1.66	0.906	3.223	0
	1	1.27	0.495		
Inference	0	2.63	1.112	0.346	0.73
	1	2.58	0.966		

Note. 0-male; 1-female.

## 2.3 T-Test Analyses: Academic Title

Table 4 illustrates that the correlations between the key words of critical thinking and academic title. There is a positive with variable evaluation except total, interpretation, analysis, inference; a  $p$  value of 0.028 exists ( $p < 0.05$ ), the significance level was positive ( $p > 0.2$ ). A slight difference between lecture, associate professor and professor scores for self-regulation appears in Table 4, a  $p$  value is 0. in addition, the total mean is 10.579, the upper mean is 20.188 from the variable self-regulation score, the lower mean is 0.583 from the variable analysis score. After a deep data analysis, focusing on “self-regulation”, professor got more scores than lecture and associate professor. Table 4 enlightens us variable academic title is an important fact. To promote the research in critical thinking, scholars should fully consider different opinions from lecture, associate professor to professor.

**Table 4**  
**T-Test Analyses: Academic Title**

	Mean	t-value	p-value
Total	10.579	.923	.399
Self-regulation	20.188	3.190	.043
Interpretation	5.468	2.203	.113

To be continued

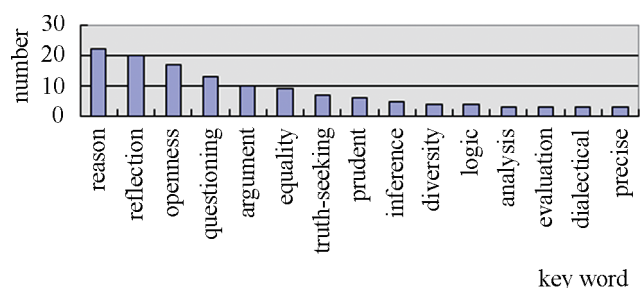
Continued

	Mean	t-value	p-value
Analysis	.583	1.264	.285
Inference	1.260	1.231	.294
Evaluation	1.551	1.789	.170

Note: \* $p < 0.05$  1: Lecture; 2: Associate professor; 3: Professor.

## 2.4 The Nature of Critical Thinking

The nature of everything is its basic quality or character. In a definition, there are one or two key words can embody the nature of it. The key words of the nature of critical thinking must be found. In Socrates's and Dewey's opinion, the nature of thinking is “reflection on the quality and relief”. However, Plato (428-347 B.C.) and Aristotle (384-322 B.C.) emphasized “syllogistical reasoning”, “dialectic” and “art of thinking” on the importance of thinking. In the Nineteenth Century, Kant (1724-1804) thought that the source of the knowledge could influence on the critical thinking. At the Twentieth of Century, Sumner stated the importance of “critical habit”. In a word, the focus on critical thinking is different from one scholar to another scholar as figure 1. Figure 1 shows us a clear description of the nature of critical thinking, the number of “reason” is the biggest, 22. The next is “reflection”, “openness”, “questioning”, “argument”, “equality”, “truth-seeking”, “prudent”, “inference”, “diversity”, “logic”, “analysis”, “evaluation”, “dialectical”, “precise” in turn, they are 20, 17, 13, 10, 9, 7, 6, 5, 4, 4, 3, 3, 3, 3. In fact, the number above is only before 15<sup>th</sup>. There are 67 key words of the nature of critical thinking in total. These key words are supposed to be classified into follows: critical thinking skill, critical thinking disposition and the criterion of critical thinking from philosophy, psychology, education and other disciplines.



**Figure 1**  
**Key Words of the Nature of Critical Thinking**

## 3. DISCUSSION

This study has focused on the nature of critical thinking from Chinese scholars. It offers several significance, firstly, it contributes to the nature of critical thinking from Chinese scholars. This study makes clear that scholars often use “reason” in their definition of critical thinking. Critical thinking is judged in terms of how well it reaches certain standards or criteria for what is considered sound or good critical thinkers (Bensely, 2011). Reflection on

the quality of thinking in relation to criteria and standards is important to self-correction in critical thinking (Lipman, 1991). Every sort of nature of the definition of critical thinking emphasized different focus. Which is on earth the real nature of critical thinking. It will be worth studying.

Secondly, there is different nature due to the author from the different disciplines. It has a direct relationship between discipline and the nature of critical thinking, even in two sorts of the nature of critical thinking. Halpern (2007) who is a psychologist has included skills for problem solving, decision making, and creativity in his definition of critical thinking.

The statistic analysis displays the nature of critical thinking from Chinese scholars, is still paid more and more attention and the present study has come out with the recommendation, although the number of the research of critical thinking is so tremendous. Firstly, the nature of critical thinking should be thought as the most important and at the heart of all the research. Every teacher should understand the nature of critical thinking. If a teacher can not systematically understand the nature of critical thinking, he will not concisely teach them to the students, even misunderstand of it. Secondly, the most important measure to do is that training projects in improving the ability of critical thinking should be explored and come into the truth. Thirdly, setting up an organization of interdisciplinary research of critical thinking and recruiting the scholars who have multi-disciplinary background to research in critical thinking. They should do interdisciplinary research of the nature of critical thinking and others.

## CONCLUSION

The tremendous number of critical thinking from western scholars has confused students, teachers and instructors in China. So, it is an eager need to study the nature by Chinese scholars. Most Chinese scholars believed that they have known the nature of critical thinking, but they couldn't agree with others. This implies that it is necessary to unceasingly study the nature of critical thinking. The difference between male and female, among the different academic title from college teachers in the nature of critical thinking will enlighten Chinese scholars a lot. The key words such as reason, reflection, openness, questioning, argument, equality, truth-seeking, prudent, inference, diversity, logic, analysis, evaluation, dialectical, precise will help the college teacher understand the nature of critical thinking in the study. Scholar's disciplinary background, gender and academic directly affect their opinions of critical thinking, interdisciplinary research should be paid more attention to promote the development of critical thinking.

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